

REMARKS

Entry of this Amendment and reconsideration are respectfully requested in view of the amendments made to the claims and for the remarks made herein.

Claims 1, 3-8 and 11-22 are pending and stand rejected.

Claims 1 and 8 are independent claims.

Claims 1 and 8 have been amended to present the claims in better form.

No new matter has been added.

Claims 1, 3-6, 8 and 11-22 stand rejected under 35 USC 103(a) as being unpatentable over Inukai (USP no. 6,680,577) in view of Hirane (USP no. 4,967,192). Claim 7 stands rejected under 35 USC 103(a) as being unpatentable over Inukai and Hirane and further in view of Hack (USPPA 2002/0030647).

With regard to the rejection of claims 1, 3-6, 8 and 11-22 as being unpatentable over Inukai in view of Hirane, applicant respectfully disagrees with and explicitly traverses the rejection of the claims.

In maintaining the rejection of the claims, the Office Action asserts that Inukai discloses an EL display device including an array of display pixels where the current through the EL display element depends on a data voltage and where the device is operable in several periods within a frame. The Office Action refers to Figures 5A-5F. The Office Action further asserts that Inukai further discloses that the first period has a first length and that during the first period a first current of a group of currents can be driven through the EL display and that a second period has a length different from the first period and that during the second period a second current of a plurality of currents is driven through the EL display element. Again Figures 5A-5F are referred to. In addition, the Office Action further asserts that the first and second currents can be selected independently. And that the current levels include a zero drive level and that the duration of one period is approximately n times the duration of the other phase, where n is the number of drive currents that can be used in the display (See, Figures 5A-5F col.

3 lines 25-40, col. 8, lines 51-55). The Office Action further asserts that Inukai, further discloses, that during the first phase each of the pixel display elements is sequentially driven for the first duration with a first drive current and during the second phase each of the display elements is sequentially driven for the second duration with a second current.

The Office Action acknowledges that Inukai fails to disclose more than two drive current levels and wherein the first plurality of drive current comprises a number n of drive current levels.

The Office Action refers to Hirane for disclosing more than two drive current levels and the first plurality of drive currents comprises a number n of drive current levels (col. 4, lines 54-67, col. 7, lines 48-63, col. 8, lines 37-47, figure 3, table 1).

In response to the Applicant's prior response, the Office Action provides further remarks as "Inukai can disclose that the duration of one period is approximately n times (in this case two times) the duration of the other period where the number n is the same as the number of drive currents, i.e., two drive current levels, while not displaying the n drive current levels where n is greater than two. Further the claim does not recite that, 'the relationship among the periods represent multiples based on the number of current levels,' as described in the arguments section of Applicant's remarks. Hence the Examiner maintains that the combination is proper and would result in the invention as claimed." (see FOA , page 8).

The Office Action further states that "[o]n page 10, Applicant argues that because Inukai does not specifically state that n is the number of drive current levels the number n in the instant invention is different than the number n in Inukai. The Examiner respectfully disagrees because Inukai discloses that there are two drive current levels, which directly reads on claim 3 ['A device as claimed in claim 1, wherein n is 8.']. The number of drive current levels directly corresponds to the ratio of the lengths of the drive period (col. 5, lines 36-56). Because Inukai discloses both drive current levels and the periods that are

determined based upon this ratio, Inukai discloses the invention claimed. That Inukai does not state this explicitly does not mean that Inukai does not disclose this feature. Clearly Inukai discloses two drive current levels and periods with lengths determined by this same number as disclosed in the above cited portions." (see FOA page 8-9).

Applicant continues to respectfully disagree with and explicitly traverse the rejection of the claims.

With reference to Figures 5A-5F, which are described in col. 3, lines 25-40, Inukai discloses, a time division method for controlling a current to a display element wherein a frame is divided into a plurality of partitions, which are divided into a write-in period and a corresponding display period. The write-in period is essentially fixed (63 milliseconds) and the display periods are organized in a decreasing relationship e.g., 1, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{16}$, $\frac{1}{32}$, etc. The length of time of each display period is based on the frame time adjusted by the fixed write-in time and a desired number of display periods. Nowhere does Inukai disclose that the display periods are related to the number of current levels (n).

Thus, even if it could be said that the durations of the periods are multiples of each other (e.g., 1 is a 4 times multiple of $\frac{1}{4}$), nowhere does Inukai disclose that the relationship among the periods represents multiples based on the number of current levels, n, as is recited in the claims.

In fact, even if it could be said that Inoue disclose two current levels, then the number of periods would be equal to two and the configuration of periods shown in Figures 5A-5F would not be possible.

Thus, even if Inukai discloses two current levels, Inukai fails to disclose that this number of levels has any relationship with the number of periods or the length of the periods.

In addition, Inukai discloses that Figures 5A-5F illustrate the case of 64 gradation, it is possible that greater levels of gradation may be achieved by using more bits (i.e., "N bit (where N is an integer greater than or equal to 2) gradation display is performed (2^n gradations), then first one frame is divided into N fields

... corresponding to the N bit gradations. The number of divisions of one frame increases with increasing gradations and the driver circuit must be driven with a high frequency." (see col. 5, lines 40-45)).

Thus, Inukai discloses that the number of display periods is based on a number N that is determined based on an available number of bits and a desired graduation level. Nowhere does Inukai disclose that the number of display periods is based on the number "n" (number of current levels), as is recited in the claims.

In addition, the Office Action refers to Inukai disclosing two current levels. That is, during one of the display periods, Inukai teaches that a voltage (and thus a current is applied) and during a write-period, no current is applied. That is the current applied to the circuit may be in one of two states; "ON" (level 1) and "OFF" (zero level).

Applicant assumes that the Office Action is referring to this ON and OFF current state condition for being comparable to the claim element " wherein the first plurality of drive currents comprises a number n of drive current levels, including a zero drive level."

However, even if this broad reading of the two states of one current is comparable to the "n" currents claimed (which applicant disagrees with), Inukai fails to disclose the claim element "first and second ones of the respective pluralities of drive currents are independently selectable and at least one of the first and second pluralities of drive currents include more than two drive current levels."

Inukai cannot disclose more than two current levels, as Inukai can only disclose an ON level and an OFF level.

Furthermore, the Office Action states that the claims do not recite the element "'the relationship among the periods represent multiples based on the number of current levels,' as described in the arguments section of Applicant's remarks"

However, Applicant would note that the independent claim 1 explicitly

states "wherein the first plurality of drive currents comprises a number n of drive current levels, including a zero drive level, and wherein a duration of one phase is approximately n times a duration of the other phase."

Thus, the claims do recite the relationship between the number " n " of current levels and the duration of one phase being an " n times" multiple of the another phase.

Accordingly, even if it could be said the two states of current described by Inokai is comparable to the value n recited in the claims, Inouki fails to disclose that this number n has any relationship to the number of display periods recited. As previously shown, Inouki teaches the number of gradations is based on a number N that is determined independent of the number of current levels. For example, even if it could be said the ON/OFF current condition of Inouki is comparable to a value of $n = 2$, as asserted by the Office Action, Figures 5A-5F illustrate a case of an $N=6$ -bit gradation having 64 steps.

Thus, Inouki fails to provide any teaching regarding determining a number of gradations based on a number of current levels (n) as is recited in the claims.

Furthermore, even if the teachings of Hirane were combined with that of Inukai, the device resulting from the combination of the teachings would not include periods that are determined based on a number, n , (number of current levels), as is recited in the claims. Rather, the combined device provides for periods having a fixed (write-in period) and a variable (display) period, the variable display period being based on a gradation level (N bits) that includes multiple currents within each display period.

A claimed invention is *prima facie* obvious when three basic criteria are met. First, there must be some suggestion or motivation, either in the reference themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the teachings therein. Second, there must be a reasonable expectation of success. And, third, the prior art reference

or combined references must teach or suggest all the claim limitations.

The Court in KSR v. Teleflex (citation omitted), however, has held that the teaching, suggestion and motivation test (TSM) is merely to be used as a helpful hint in determining obviousness and a bright light application of such a test is adverse to those factors for determining obviousness enumerated in the Graham v. John Deere (citation omitted).

The Court further acknowledged that "a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art... [I]t is important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does. This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known." (citation omitted).

Accordingly, the combination of the cited references fails to disclose a material element recited in the claims and, hence, fails to render obvious the subject matter recited in the claims.

For at least this reason, applicant submits that the reason for the rejection of the claims has been overcome.

With regard to the rejection of the remaining claims, these claims depend from independent claims 1 and 8 and, hence, are also allowable by virtue of their dependency upon an allowable base claim

In addition, in rejecting claim 3, the Office Action refers to Inukai "discloses N can be any integer greater than or equal to two." (column 5 lines 38-53). However, a review of this section reveals that N, referred to by Inukai, refers to a number of fields that may be included within a frame. The value N referred to by Inukai is not comparable to the value n referred to in the claims, as this value n

refers to a number of driving currents within a phase.

Although, Applicant believes that the claims, as presented, are patently distinguishable from the teachings of the cited reference, Applicant has elected to amend the claims to provide further clarity. More specifically, independent claims 1 and 8 have been amended to recite " wherein a duration of ~~one~~ the second phase is approximately n times a duration of the ~~other~~ first phase." No new matter has been added. Support for the amendment may be found at least on page 8, third para. ("For example, the first phase can again have 8 levels to provide the lowest 8 levels (including zero), and the 8th to 63rd levels can be provided by driving the pixels to one of 56 different levels 34 in the second phase. For this purpose, the second phase is again 8 times longer than the first phase.").

Although the instant Office Action has been made final, applicant submits that the claims should be entered as the amendments to the claims are minor and provided to present the invention in better form. No new search, other than a cursory search, is believed needed.

For the amendments made to the claims and for the remarks made, herein, applicant submits that the reason for the rejection of the claims has been overcome and respectfully requests that the rejection be withdrawn and a Notice of Allowance be issued.

Applicant denies any statement, position or averment stated in the Office Action that is not specifically addressed by the foregoing. Any rejection and/or points of argument not addressed are moot in view of the presented arguments and no arguments are waived and none of the statements and/or assertions made in the Office Action is conceded.

Applicant makes no statement regarding the patentability of the subject matter recited in the claims prior to this Amendment and has amended the claims solely to facilitate expeditious prosecution of this patent application. Applicant respectfully reserves the right to pursue claims, including the subject matter encompassed by the originally filed claims, as presented prior to this Amendment, and any additional claims in one or more continuing applications during the pendency of the instant application.

Should the Examiner believe that the disposition of any issues arising from this response may be best resolved by a telephone call, the Examiner is invited to contact applicant's representative at the telephone number listed below.

No fees are believed necessary for the timely filing of this paper.

Respectfully submitted,
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